

56. (Thrice Amended) A display apparatus

comprising:

an electron source plate including:

a substrate, and

a plurality of electron emission elements

arranged in a matrix of rows and columns on said substrate,

each electron emission element including:

a first electrode disposed on an

upper surface of said substrate,

a second electrode disposed on the

upper surface of said substrate, said first and second

electrodes both lying in substantially a same plane that is

substantially parallel to the upper surface of said

substrate; and

an electron-emission layer having an

electron emission region included in at least a portion

thereof, said electron emission region containing an

electrical discontinuity, at least a portion of said

electron-emission layer extending from a surface of the first

electrode to a surface of the second electrode, for emitting

an electron from the electron emission region upon an

application of a low voltage across said first and second electrodes;

a matrix wire configuration comprising row wires and column wires respectively corresponding to the rows and columns of the electron emission elements arranged in the matrix;

a signal applier, arranged for applying (i) a scan signal to the row wires, and (ii) a modulation signal to the column wires corresponding to the scanned electron emission elements, to cause a low voltage to be applied across the first and second electrodes of each electron emission element, wherein the signal applier applies the modulation signal to the column wires in synchronization with the application of the scan signal to the row wires; and

a fluorescent device plate including:

a transparent substrate,

a fluorescent layer,

an acceleration electrode, and

an acceleration voltage applier,

arranged for applying an acceleration voltage to the acceleration electrode,

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wherein the electron source plate and the
fluorescent device plate form vacuumed housing walls of the
display device.

57. (Not Changed From Prior Version) The display
apparatus of Claim 56, wherein said modulation signal is made
according to an information signal.

58. (Not Changed From Prior Version) The display
apparatus of Claim 56, wherein said electron-emission layer
comprises a conductive region and an insulating region.

59. (Not Changed From Prior Version) The display
apparatus of Claim 56, wherein said electron-emission layer
contains carbon.

60. (Not Changed From Prior Version) The display
apparatus of Claim 56, wherein said acceleration voltage is
in the range of 0.8kV to 1.5kV.

61. (Not Changed From Prior Version) The display
apparatus of Claim 56, wherein said signal applier

simultaneously applies the modulation signal to the electron emission elements on a selected row in synchronization with the scan signal.

62. (Not Changed From Prior Version) The display apparatus of Claim 56, wherein ends of said first and second electrodes are disposed in a lateral direction at least roughly parallel to the surface of the substrate and face each other, and said electron-emission layer is disposed between the ends of those electrodes.

63. (Not Changed From Prior Version) The display apparatus of Claim 62, wherein said signal applier applies the voltage across the electrodes to generate an electric field across the surface of the electron-emission layer.

64. (Not Changed From Prior Version) The display apparatus of Claim 56, wherein said voltage applied across said first and second electrodes is less than or equal to 32 Volts.

65. (Not Changed From Prior Version) The display apparatus of Claim 56, further comprising at least one grid electrode disposed between said electron source plate and said fluorescent device plate.

66. (Not Changed From Prior Version) The display apparatus of Claim 65, further comprising at least one electrical connector coupled to said at least one grid electrode, at least a portion of said at least one electrical connector being disposed outside of said vacuum housing.

D 2 54 67. (Amended) The display apparatus Claim ⁴³56,
wherein the signal applier applies the scan signal to the row wires row by row.

REMARKS

Claims 1-43 and 56-67 remain pending in this application. Claim 56 has been amended herein.¹ Support for

^{1/} Only the paragraphs of Claim 56 defining the first and second electrodes and the electron-emission layer have been amended herein. Those changes have not been made for purposes related to patentability.